2/2 010 UNCLASSIFIED

CIRC ACCESSICN NO--AP0134988 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ARCOCH:CHCL WITH 3 MOLES NAL IN ME SUB2 CO 3-5 HR GAVE ARCOCH:CHI; AR IS :PH, M. 37-38DEGREES; P,MEC SUBCH SUB4, M. 70DEGREES; P,CLC SUB6 H SUB4, M. 84-85DEGREES; AND P,BRC SUB6 H SUB4, M. 96-70DEGREES. THESE ILLUMINATED WITH UV LIGHT IN C SUB6 H SUB6NEGATIVE HG SUSPENSION 3-4 HR GAVE ARCOCH:CHHGI; AR EQUALS PH, M. 110DEGREES; P,MEC SUB6 H SUB4 M. 107-8DEGREES; AND P,CLC SUB6 H SUB4, M. 117-18DEGREES, IN 78-90PERCENT YIELDS. SIMILARLY WAS PREPD. ACCH:CHHGI,M.83-35DEGREES. THE PRODUCTS WERE PURIFIED BEST ON AL SUB2 O SUB3, AT TIMES SHOWING THE 2 GEOMETRIC ISOMETRIC FORMS, OF WHICH ONE WAS GENERALLY GREATLY PREDOMINANT.

SOEDIA., MOSCOW, USSR. FACILITY: INST. ELEMENTOORG.

UNCLASSIFIED

USSR

UDC 547.241

NESMEYANOV, A. N., RYBIN, L. V., GUBENKO, N. T., PETROVSKIY, P. V., and RYBINSKAYA, M. I., Institute of Elemental Organic Compounds Academy of Sciences USSR

"The Reaction of Triphenylphosohine with Iron Carbonyl Complexes of $\beta$-Substituted $\alpha, \beta$-Unsaturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2473-2477

Abstract: It was shown that the stability of the metal lignad bond in monoolefin $\pi$-complexes of iron may be determined by the reaction of the complex with triphenylphsophine such as in the following reaction:

$$C_6H_5COCH{=}CHX + (C_6H_5)_3P \rightarrow C_6H_5COCH{=}CHX + \underset{\text{II}}{Fe(CO)_3P(C_6H_5)_3}$$

$$\underset{\text{I}}{Fe(CO)_4} + C_6H_5CH{=}CHX \rightarrow \underset{\text{III}}{O\!\!\setminus\!\!Fe(CO)_2P(C_6H_5)_3}$$

a) $X = COC_6H_5$ б) $X = COOCH_3$

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USSR

NESMEYANOV, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2473-2477

The reaction of trans dibenzoylmethylene and trans methyl esters of $\beta$-benzoylacrilic acid with triphenylamine in methyl alcohol and heptane in room temperature and at heating to 60-70°C resulted in the replacement of the CO ligand with the formation of complexes II and III above. The order of increasing ease of substitutions of the ligands is

$$-CO-CH=CH-CO < CO < -CH=CH-Co-.$$

From this it can be seen that the relative ease of substitution increases with the increasing strength of the $\gamma$ acids. Structures were confirmed by IR and NMR spectra.

2/2

USSR

UDC 627.81.034(47+57)

BEYROM, S. G., KASKEVICH, L. N., RYBKA, V. G., SAVKIN, V. M., SHIROKOV, V. M.

"Dynamics of Revision of the Banks of the Novosibirsk Hydroelectric Power Plant Reservoir in 1966"

Izuch. i ispol'z. vodn. resursov SSSR. 1966-1967 V sb. (Study and Use of USSR Water Resources. 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, pp 134-135 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D45)

Translatnon: A brief description of the level and wind-wave conditions of the reservoir, data on the nature of revision of the reservoir banks and the dynamics of the bottom layer of the layers of water involved in the wave action in the shore zone and data on the alluvial displacements along the shore are presented.

1/1

Acc. Nr: AP0055992

Abstracting Service: CHEMICAL ABST. 6 70

Ref. Code: UR0050

R

113121v Content of mercury found in amalgam scrubber decomposers. Rybkin, V. I.; Kubasov, V. L.; Mityushina, K. A. (USSR). *Zh. Prikl. Khim. (Leningrad.)* 1970, 43(2), 327–31 (Russ). A vertical 300-mm diam. by 2.52-m. long amalgam decomposer scrubber loaded to heights of 840, 1680, and 2520 mm with 5–10, 15–20, and 40–50 mm graphite particles was used in an efficiency study at Hg flow rates of 8–22 l./min. Equations relating decomposer efficiency to the above parameters were developed. Amts. of Hg required for amalgam decompn. were calcd. and the results agreed to ±10% with exptl. detns. Decomposer scrubbers loaded with 15–20-mm particles were most efficient since they required the least amt. of Hg. DPJR

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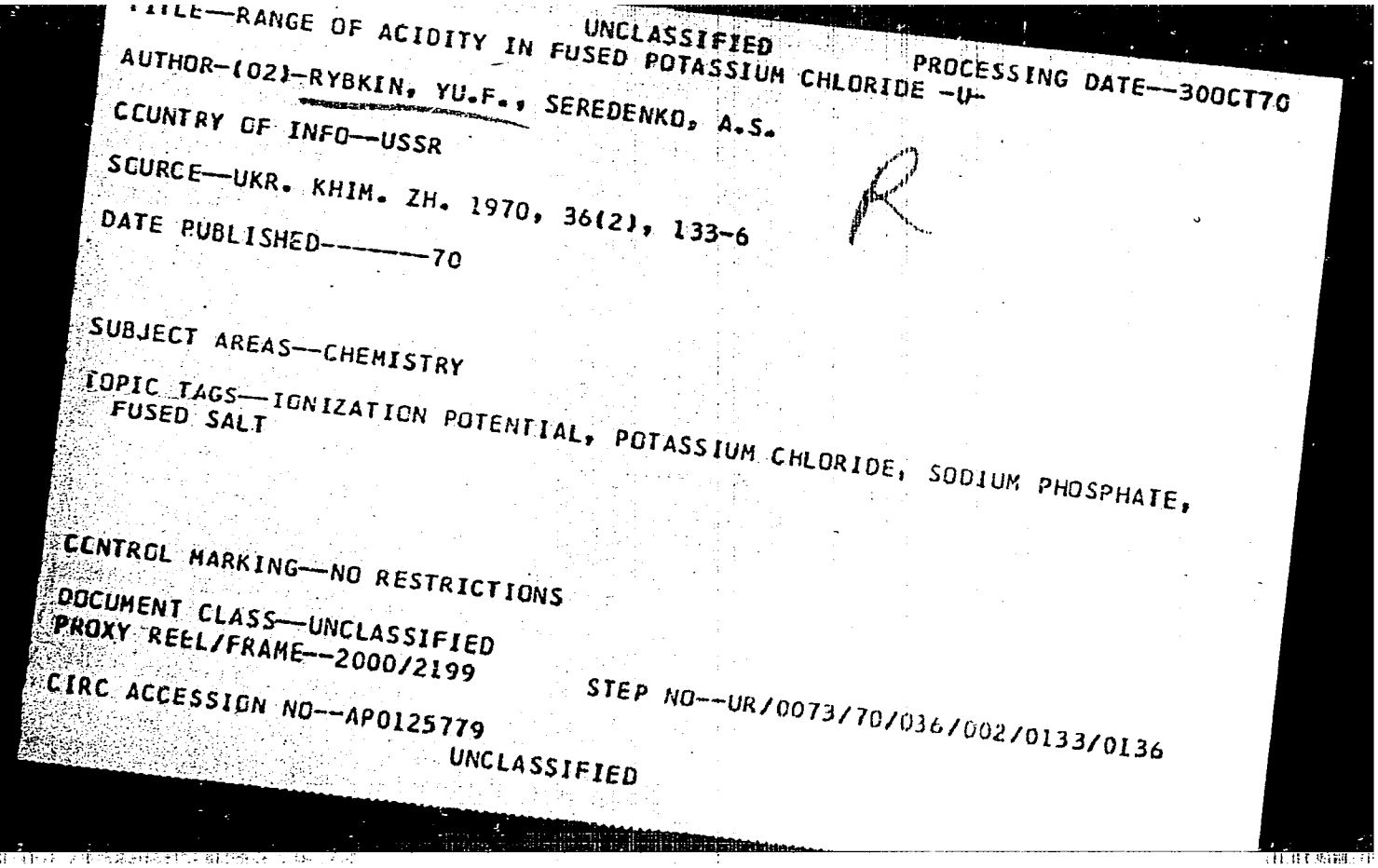
REEL/FRAME
19841321



UNCLASSIFIED

TITLE--RANGE OF ACIDITY IN FUSED POTASSIUM CHLORIDE -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-RYBKIN, YU.F., SEREDENKO, A.S.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(2), 133-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IONIZATION POTENTIAL, POTASSIUM CHLORIDE, SODIUM PHOSPHATE, FUSED SALT

CONTROL MARKING--NO RESTRICTIONS

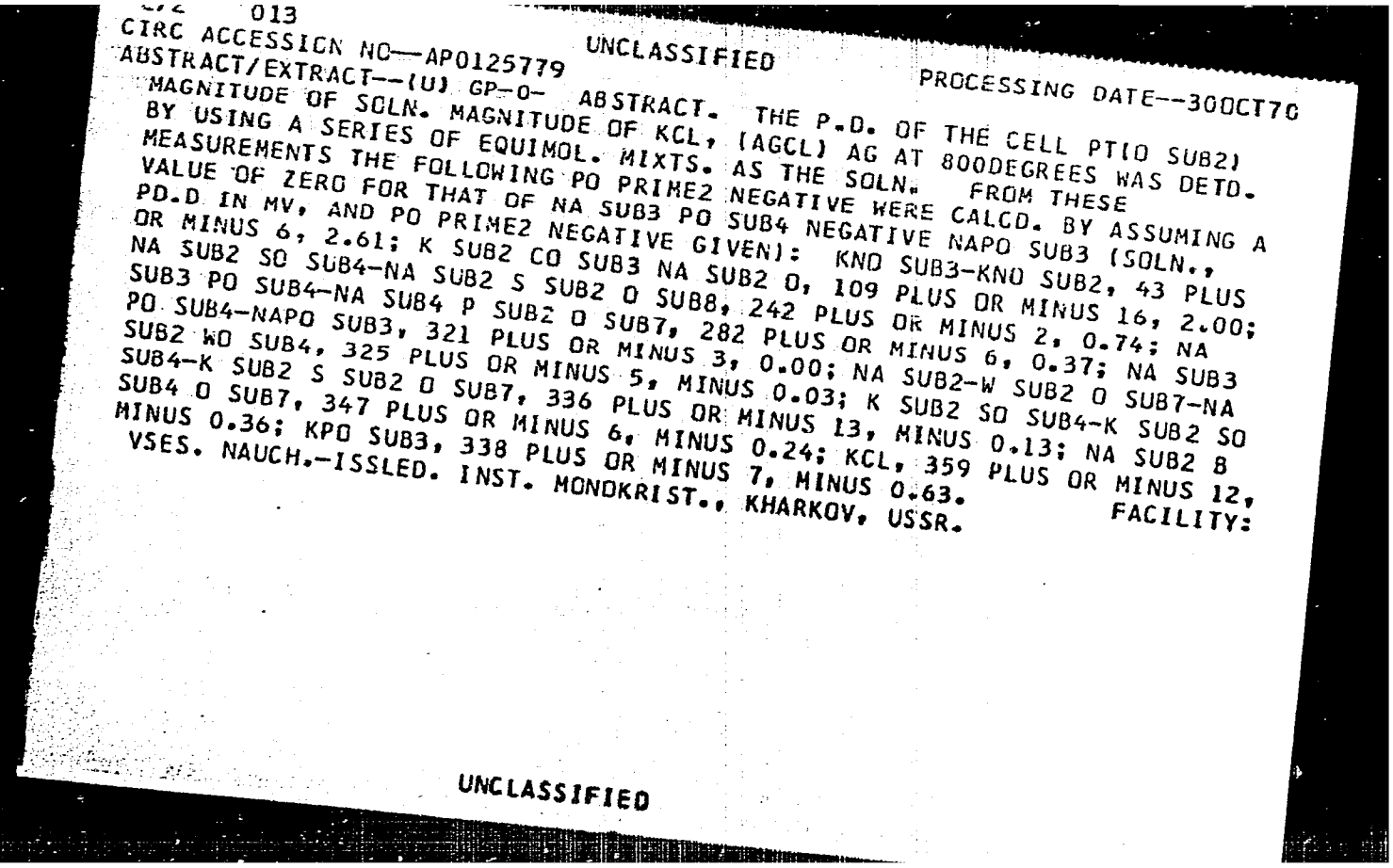
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2199

STEP NO--UR/0073/70/036/002/0133/0136

CIRC ACCESSION NO--AP0125779

UNCLASSIFIED



072 013
CIRC ACCESSION NO--AP0125779 UNCLASSIFIED PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE P.D. OF THE CELL PT(O SUB2) MAGNITUDE OF SOLN. MAGNITUDE OF KCL, (AGCL) AG AT 800DEGREES WAS DETD. BY USING A SERIES OF EQUIMOL. MIXTS. AS THE SOLN. FROM THESE MEASUREMENTS THE FOLLOWING PO PRIME2 NEGATIVE WERE CALCD. BY ASSUMING A VALUE OF ZERO FOR THAT OF NA SUB3 PO SUB4 NEGATIVE NAPO SUB3 (SOLN., PD.D IN MV, AND PO PRIME2 NEGATIVE GIVEN): KNO SUB3-KNO SUB2, 43 PLUS OR MINUS 6, 2.61; K SUB2 CO SUB3 NA SUB2 O, 109 PLUS OR MINUS 16, 2.00; NA SUB2 SO SUB4-NA SUB2 S SUB2 O SUB8, 242 PLUS OR MINUS 2, 0.74; NA SUB3 PO SUB4-NA SUB4 P SUB2 O SUB7, 282 PLUS OR MINUS 6, 0.37; NA SUB3 PO SUB4-NAPO SUB3, 321 PLUS OR MINUS 3, 0.00; NA SUB2-W SUB2 O SUB7-NA SUB2 WO SUB4, 325 PLUS OR MINUS 5, MINUS 0.03; K SUB2 SO SUB4-K SUB2 SO SUB4-K SUB2 S SUB2 O SUB7, 336 PLUS OR MINUS 13, MINUS 0.13; NA SUB2 B SUB4 O SUB7, 347 PLUS OR MINUS 6, MINUS 0.24; KCL, 359 PLUS OR MINUS 12, MINUS 0.36; KPO SUB3, 338 PLUS OR MINUS 7, MINUS 0.63. FACILITY: VSES. NAUCH.-ISSLED. INST. MONDKRIST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 621.35.035(088.8)

RYBKIN, YU. F., SEREDENKO, A. S.

"Electrolytic Cell"

USSR Author's Certificate No 308772, filed 25 Nov 69, published 8 Sep 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L347P)

Translation: An electrolytic cell has been patented for measuring the acidity of molten salts comprising an oxygen and a silver chloride electrode placed in a vessel with a melt of the investigated salts. The cell is distinguished by the fact that in order to increase the measurement accuracy and expand the range useful, the oxygen electrode is made in the form of a tube containing 85% $ZrO_2$ and 15% CaO, the inside surface of which is coated with platinum black, and the silver chloride electrode is made in the form of an alundum test tube with a porosity of 0.1-0.2% on the bottom of which an ingot of Ag with a platinum lead is placed under the layer of investigated electrolyte.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--BACTERICIDAL ACTION OF ACRICHINE ON E. COLI AND THE PROCESS OF TRANSFER OF R FACTORS -U-

AUTHOR-(03)-RYBKINA, L.G., ASTAPOV, A.A., ANOKHINA, R.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 122-126

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, BACTERIAL DEOXYRIBONUCLEIC ACID, SHIGELLA, BACTERICIDE

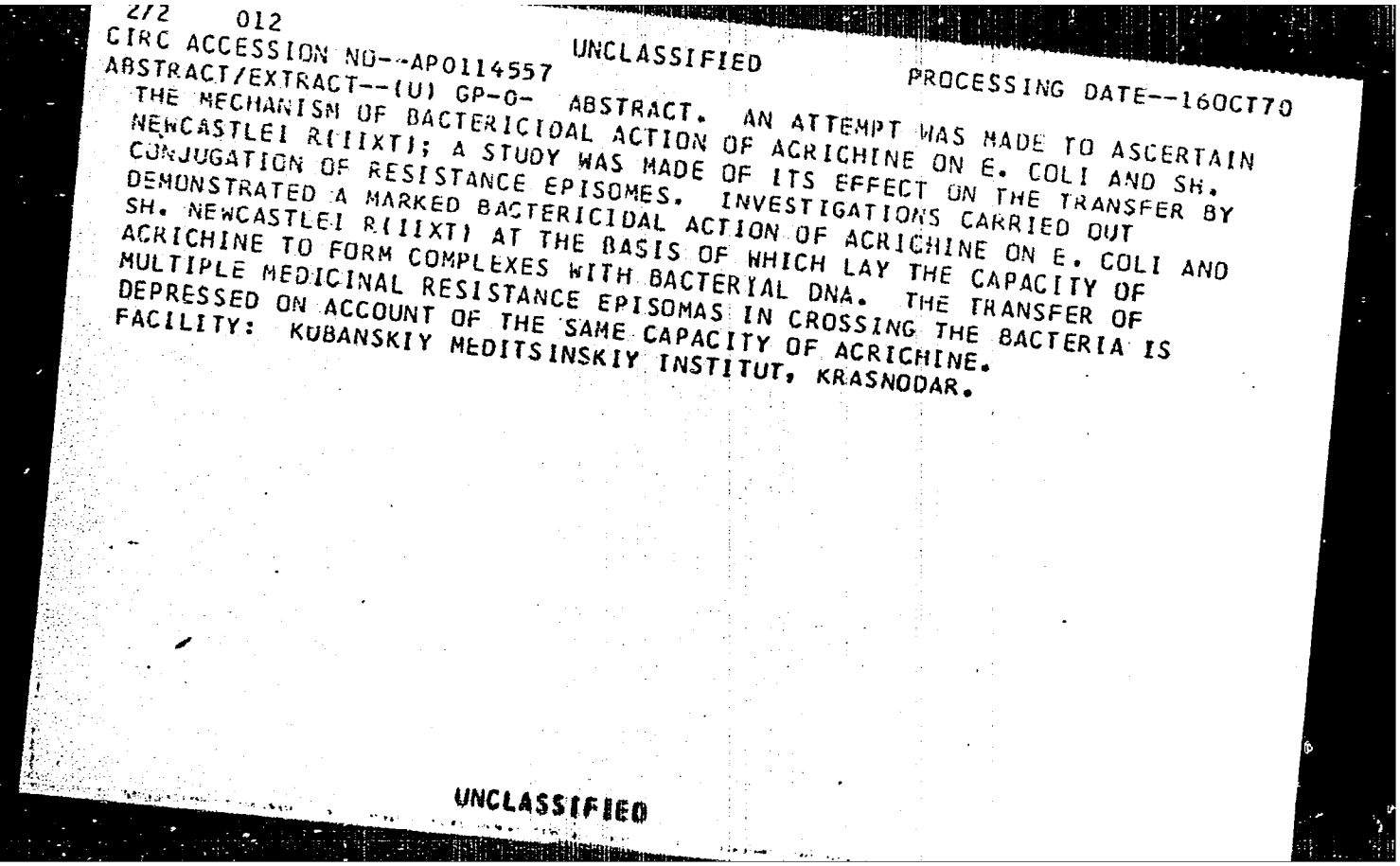
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0161 STEP NO--UR/0016/70/000/005/0122/0126

CIRC ACCESSION NO--AP0114557

UNCLASSIFIED



2/2 012 UNCLASSIFIED
CIRC ACCESSION NO--AP0114557 PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTEMPT WAS MADE TO ASCERTAIN THE MECHANISM OF BACTERICIDAL ACTION OF ACRICHINE ON E. COLI AND SH. NEWCASTLEI R(IIXT); A STUDY WAS MADE OF ITS EFFECT ON THE TRANSFER BY CONJUGATION OF RESISTANCE EPISOMES. INVESTIGATIONS CARRIED OUT DEMONSTRATED A MARKED BACTERICIDAL ACTION OF ACRICHINE ON E. COLI AND SH. NEWCASTLEI R(IIXT) AT THE BASIS OF WHICH LAY THE CAPACITY OF ACRICHINE TO FORM COMPLEXES WITH BACTERIAL DNA. THE TRANSFER OF MULTIPLE MEDICINAL RESISTANCE EPISOMAS IN CROSSING THE BACTERIA IS DEPRESSED ON ACCOUNT OF THE SAME CAPACITY OF ACRICHINE.
FACILITY: KUBANSKIY MEDITSINSKIY INSTITUT, KRASNODAR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EPIDEMIOLOGICAL REGULARITIES OF MEASLES IN THE USSR -U-

AUTHOR-(02)-POPOV, V.F., RYBKINA, N.N.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6, PP 68-73

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEASLES, EPIDEMIOLOGY, MORBIDITY, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0411 STEP NO--UR/0016/70/000/006/0068/0073

CIRC ACCESSION NO--AP0126164

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0126164 PROCESSING DATE--04DEC7C

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCIDENCE OF MEASLES IN THE COUNTRY FOR THE YEARS OF 1890 TO 1968 IS ANALYZED IN THIS WORK. THIS INCIDENCE WAS CHARACTERIZED BY PREVALENCE OR FALL IN CERTAIN YEARS. THE INCIDENCE PROVED TO CLIMB EVERY 2 TO 3 YEARS. MORBIDITY INDEX AMONG THE URBAN POPULATION WAS HIGHE THAN IN RURAL RESIDENTS. MOST OF THE CHILDREN BECOME INFECTED OURING THE WINTER SPRING MONTHS, AND ARE THROUGH WITH MEASLES WHEN REACHING THE AGE OF 8 TO 10 YEARS. THE INCIDENCE OF MEASLES IN THE ORGANIZED CHILDREN'S COLLECTIVE BODIES IS GREATER THAN AMONG CHILDREN BROUGHT UP AT HOME. WIDE APPLICATION OF LIVING MEASLES VACCINE WILL PERMIT TO CUT THE INCIDENCE OF THIS DISEASE IN THE NEAREST FUTURE. FACILITY: MINISTERSTVA ZDRAVOOKHRANENIYA SSSR.

UNCLASSIFIED

Acc. Nr.: AP0030992 R Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 1, pp 58-60

# ANTIBODIES DEVELOPMENT IN THE ORGAN CULTURE OF LYMPH NODES FOLLOWING PRIMARY IMMUNIZATION

N. N. Rybkina

N. F. Gamalei Institute of Epidemiology and Microbiology of the AMS of the USSR, Moscow

Primary synthesis of antibodies can be achieved following primitive immunization of lymph node organ cultures of rabbits with the antigen derived from Gärtner' bacteria. The progressive increase in the number of cells producing antibodies is characterized by considerable fluctuations, which depend on the antigen addition timing. The lowest figures were obtained in the test series where the antigen was added concurrently with planting of the culture. The greatest effect (189 plaques per $10^6$ cells) was seen to occur on the 7th day following antigenic stimulation of a 20-day old tissue culture, e. g. by the time when the lymphoid tissue was restored in the ogran culture.

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1/1 REEL/FRAME 2

19691018

- USSR

UDC 547.341

RYBKINA, V. V., ROZINOV, V. G., and GRECHKIN, YE. F.

"Effect of Aprotonic Solvents on Phosphorylating Properties of Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 62-66

Abstract: On interaction of phosphorus pentachloride with olefins, primarily two types of compounds are formed: the phosphorylation products (I) [K. N. Anisimov, et al., Izv. AN SSR, OkhN, 610, 1954] or (I) [V. V. Ponomarev, et al., Kremniyorganicheskiy sovedineniya, trudy soveshchaniya, Moscow, 63, 1966] and chlorination products (II) [D. P. Wyman, et al., J. Org. Chem., No 28, 882, 1969]. This is represented as follows:

$$RCH{=}CH_2 + PCl_5 \rightarrow \begin{cases} \overset{A}{\rightleftarrows} HCl + RCH{=}CHPCl_4 \cdot PCl_5 & (I) \\ \text{или } RCHCl{-}CH_2PCl_4 \cdot PCl_5 & (I') \\ \overset{B}{\rightleftarrows} PCl_3 + RCHCl{-}CH_2Cl & (II) \end{cases}$$

The chlorides (II) is the product of the independent reaction B and not decomposition of the phosphorus-containing derivatives (I) or (I'). The latter are stable in the solution in the presence of moderate heating, and the chlorinated products are formed always even under mild conditions at room temperature. A further study was made of the phosphorylation reactions

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USSR

UDC: 62-83-82

AGRANOV, D. M., RYBNIKOV, S. I.

"An Electrohydraulic Throttling Device"

USSR Author's Certificate No 254900, filed 26 Jul 67, published 9 Mar 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A205 P)

Translation: This Author's Certificate introduces an electrohydraulic choking device which contains an electronic amplifier, an electromechanical converter, and a hydraulic amplifier connected in series. To improve the dynamic and static characteristics, there is a device for setting the rated pressure in the supply line, a slide-valve displacement indicator, pressure pickups before and after the throttling element which controls the hydraulic amplifier, and special connections between the elements of the device. When there is a change in pressure in the supply line, the pressure pickup signal is compared with the signal from the pressure setting device. The signal difference is converted in an auxiliary element whose transfer function is the inverse of that which relates displacement of the distributor slide valve to the input signal. The pickup signal is divided by the difference between the signals from the pressure setting device and the pickup. The re-

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AGRANOV, D. M., RYBNIKOV, S. I., USSR Author's Certificate No 254900

sultant quotient is multiplied by the output signal of the auxiliary element. The output signal from the multiplier is sent to the input of the amplifier, causing a further displacement of the distributor slide valve, which compensates for pressure oscillations in the supply line. One illustration. N. S.

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USSR

UDC 513.015

RYBNIKOVA, N. M.

"Affinely-Connected Spaces with Torsion of the First Class"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, 1970, pp 76-81

Abstract: The problem of investigating affinely-connected spaces with torsion of the first class is part of the general problem of imbedding of an affinely-connected space in an affine space. The statement of the problem and the state-of-the-art in this area are discussed in an earlier paper by G. F. Laptev.

The affinely-connected space $A_n$ with torsion of the first class of dimension n can be realized in the N-dimensional affine space $R_{n+1}$ on the hypersurface equipped with nontangential base hyperplanes and straight support lines. The differential equations involved include the imbedding equations

$$\theta^i = \omega^i, \quad \theta^i_j = \omega^i_j \quad (a, b, i, j, k, \ell = 2, \ldots, n) \tag{1}$$

and the equations for the hypersurface

$$\theta^{n+1} = \lambda_i \omega^i, \quad \theta^{n+1}_i = \lambda_{ij} \omega^j, \quad \theta^i_{n+1} = \lambda^i_j \omega^j. \tag{2}$$

USSR

RYBNIKOVA, N. M., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, 1970, pp 76-81

Here $\theta^I$, $\theta^I_K$ (I, K, L = 1, ..., n + 1) are the Pfaffian forms determining the infinitesimal displacements of the frame of reference of the (n+1)- dimensional affine space, and $\omega^i$, $\omega^i_j$ are the forms of the n-dimensional affinely-connected space with torsion. The components of the torsion and curvature tensors are denoted by $R^i_{kl}$ and $R^i_{jkl}$ respectively. From the equations obtained by external differentiation of system (1), taking (2) into consideration, and the structural equations, we have

$$R^i_{ki} = \frac{1}{2}\Lambda_{[k}\Lambda^i_{l]}, \quad R^i_{jkl} = \frac{1}{2}\Lambda_{j[k}\Lambda^i_{l]} . \tag{3}$$

In this paper the author investigates only such spaces with torsion of the first class for which the Ricci tensor $R_{ij} = R^a_{ija}$ is nondegenerate. It is pointed out that this can occur only when $\det \|\Lambda_{ij}\| \neq 0$. Here, the entity $\Lambda^{ij}$, the components of which are elements of the matrix $\|\Lambda^{ij}\| = \|\Lambda_{ij}\|^{-1}$, can be introduced into the investigation.

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USSR

RYBNIKOVA, N. M., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, 1970, pp 76-81

The necessary and sufficient attribute of a space with torsion of the first class is derived. First-class spaces with co-constant torsion and curvature are discussed for spaces of dimension $n > 2$ with a nondegenerate Ricci tensor.

3/3

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECTIVENESS OF THE USE OF HERBICIDES ON SOSNOVKA COWPARSNIP PLANTINGS IN THE FIRST YEARS OF LIFE -U-

AUTHOR-(02)-CHUBAROVA, G.V., RYBNIKOVA, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 210-11

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, AGRICULTURE CROP, WEED KILLER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0182 STEP NO--UR/0394/70/008/003/0210/0211

CIRC ACCESSION NO--AP0130941

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130941

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIELD EXPTS. ON POSTEMERGENCE WEED CONTROL BY SIMAZINE (I), PROMETRYNE (II), AND 2,4-D BUTYL ESTER (III) IN SOSNOVKA COWPARSNIP (HERACLEUM SPECIES) FOR ENSILAGE, SOWN IN AUTUMN, WERE CARRIED OUT. ONE EXPT. INCLUDED THE RATES 2 KG I, 2 AND 4 KG II, AND 1.0 KG III-HA, AND THE OTHER 2 AND 4 KG I, 2 AND 4 KG II, AND 0.5 AND 1.0 KG III-HA. THE MAIN WEEDS WERE: CHENOPODIUM ALBUM, GALEOPSIS SPECIOSA, CHRYSANTHEMUM INODORUM, POLYGONUM CONVOLVULUS, RAPHANUS RAPHANISTRUM, THLASPI ARVENSE, FUMARIA OFFICINALIS AND SPERGULA SPECIES. GOOD CONTROL AND THE HIGHEST CROP YIELDS WERE OBTAINED WITH I AND II. THE BEST RESIDUAL EFFECTS WERE FOUND WITH I AT 2 KG-HA AND II AT 4 KG-HA. WEEDS AT THESE RATES AVERAGED ONLY 3.1 AND 6.1PERCENT, RESP., AND NO RESIDUES WERE FOUND.

UNCLASSIFIED

USSR

UDC 539.4.015

RYBOVALOV, YU. P., and GORDIYENKO, L. K., Moscow

"Effect of Thermomechanical Treatment and Subsequent Creep on Sensitivity of Steel 1Kh12V2MF to Stress Concentrations and on Resistance to Brittle Fracture"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 77-84

Abstract: A study was made of criteria characterizing the tendency of a strengthened, thermally stable steel to brittle fracture as a result of stress concentrations, as well as criteria for evaluating the deformability of a high-strength metal in rigid forms of a stress state. The material used for this work was steel 1Kh12V2MF (EI-756) in the form of turbine disks, 500 mm indiameter. It was found that the criteria of Irvin $K_{ic}$ was best suited for this purpose. As a result of thermomechanical treatment, resistance of the steel to propagation of brittle cracks is increased ($K_{ic}$ grows from 178 to 205 kg/mm3/2); subsequent creep lowers the $K_{ic}$ level, but in the case of the strengthened steel this lowering is sharply slowed, which gives evidence of a high thermomechanical stability for the high-strength state produced. Thermomechanical treatment improves deformability of the steel in the initial stages of elastic-plastic stress despite a lowering of the overall

USSR

RYBOVALOV, YU. P., and GORDIYENKO, L. K., Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 77-84

level of plastic properties. This attests to the increased capability of the strengthened material to relaxation of local overstrain. Increased deformability is also maintained after long-time creep (up to 10,000 hours) in the 500-600°C interval. Two figures, one table, ten bibliographic references.

2/2

USSR UDC 616.005.1-085.468

SHRAGO, M. I., SHINKARENKO, A. A., GONCHAROVA, L. S., RYBUS, N. YA., and POLUPAN, V. N., Khar'kov Scientific Research Institute of General and Emergency Surgery, Khar'kov

"Local Hemostatics Based on Oxidized Cellulose"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, Vol 106, No 5, May 71, pp 61-64

Abstract: Hemostatics prepared on the basis of oxidized cellulose by methods developed by workers at the Khar'kov Chemico pharmaceutical Institute (B. G. Yasnitskiy, Ye. B. Dol'berg, V. A. Oridoroga, A. A. Shalimov, V. N. Polupan, A. A. Shinkarenko, and M. I. Shrago) were subjected since 1965 to experimental and clinical tests at the Khar'kov Scientific Research Institute of General and Emergency Surgery. After experimental tests on animals, the hemostatics were applied clinically at the Institute of General and Emergency Surgery under the direction of Prof. A. A. Shalimov, Corresponding Member of the Academy of Sciences Ukrainian SSR, Director of the Institute. Hemostatic gauze, hemostatic viscose fabric, and the hemostatic composition Oxycellodex (hemostatic gauze powder + 20% of a dextran solution with a mol. wt. of 45,000-70,,,) were applied successfully on patients. The guaze and viscose fabric were used to stop the blood flow from small blood vesseal after major

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USSR

SHRAGO, M. I., et al., Vestnik Khirurgii imeni I. I. Grekova, Vol 106, No 5, May 71, pp 61-64

operations. An advantage of these hemostatics was that they did not have to be removed from the wound, because they were resorbed. Oxycellodex was injected with a syringe to fill the channels left after transcutaneous puncture biopsy of the liver of splenic portography. The hemostatic gauze is being produced at the experimental plant of the Khar'kov Chemico pharmaceutical Institute. Preparations for the production of the hemostatic viscose fabric at this plant have been made.

2/2

Forming

USSR

UDC 621.983.1:678.664

KOMAROV, A. D., RYBYKH, A. A., SHADRIN, V. K., and KIROV, F. V.

"Stamping Sheet Parts with Polyurethane"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

Abstract: The use of polyurethane cushions along with or instead of rubber cushions, due to their better properties, is described in the forming of aluminum alloys (D16AM, A16AT, AMTsM, AMg6M, and AMg3M), stainless steels, and titanium alloys of different thicknesses depending on the class of the formed parts (straight-line edges, small and large curvature convex sides, and small and large curvature concave sides). The class of straight-line edges allows thicknesses of 5, 1.5, and 1.2 mm to be stamped for Al, stainless steel, and Ti parts; small radius of curvature permits thicknesses of 3, 1.2, and 1 mm, respectively for Al, stainless, steel and Ti to be stamped; while for a large radius of curvature the thicknesses are 2 mm for Al and 1.2 for stainless steel (thickness not given for Ti). For straight-line stamping no manual finishing is required while for the other two classes, a small amount of manual finishing is required. During 1971-72, 4,727 parts were produced by stamping in a rubber-polyurethane container with a pressure up to 800 kgf/cm$^2$,

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USSR

KOMAROV, A. D., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

and almost 3,000 items were converted to cutting production using the same technology. The overall economic effect from introduction of cutting and forming processes in the described container, in conjunction with developed technology and equipment, amounted to 613,500 rubles/year. Six figures, 12 bibliographic references.

2/2

USSR

RYCHAGOV, L. Gidrorybproyekt

"Planning of Potable Water Supply"

Moscow, Rybovodstvo i Rybolovstvo, Sep-Oct 71, No 5, pp 11-12

Abstract: Demineralization and decontamination of domestic water for settlements represents an acute problem in the USSR.

Artesian water is preferred for fish-breeding farms, for its lower bacterial content and greater economy, though removal of iron, calcium and magnesium is often necessary. The Moscow Plastics Institute has developed several low-yield electroionitic installations for purification. The small-size "Rodnik-3", simple and economical in operation, and serving up to 15 years, functions with an ion-exchange membrane; it is now in series production. Chlorination, ozonization, and ultrasonic, thermal and other methods, are all used in decontamination, but bacterial radiation is preferred where the water is not turbid or ferruginous. Two types of bacterial radiation unit are in use, one (the OV-AKKh-1) employing a submerged mercury-arc lamp which is installed directly on the intake or on the delivery conduits. These units have already proved effective in Tula, Penza, Mytishchi and other cities; they consume 10-15 w-hr/$m^3$ for subsurface water, and up to

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USSR

UDC: 621.372.837(088.8)

KRASNOV, Ye. S., RYCHIN, V. M., YESKIN, A. V.

"A Commutating Device"

USSR Author's Certificate No 270022, filed 9 Jul 68, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B211 P)

Translation: The proposed device contains a waveguide wye in the H plane with its arms cut in half by a metal plate. The device also contains ferrite nonmutual 180° phase shifters. To increase the permissible power level and to reduce overall dimensions and weight, the phase shifters are installed in each of the two arms on different sides of the dividing plate.

1/1

USSR UDC: 533.697

RYCHKOV, A. D.

"Calculation of a Twisted Flow of Gas in an Axisymmetric Laval Nozzle by the Steadying Method"

Tr. NII prikl. mat. i mekh. pri Tomsk. un-te (Works of the Scientific Research Institute of Applied Mathematics and Mechanics Affiliated With Tomsk University), 1970, otd. vyp., pp 10-13 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B382)

Translation: An investigation is made of a twisted flow of gas in a Laval nozzle with the use of the steadying method whereby a stationary gas flow is treated as a time-limiting case of nonstationary flow. An axisymmetric flow of gas with a twist is described by a system of nonstationary gasdynamic equations in the form of conservation laws. The numerical solution of the resultant system of equations (in the case of supercritical nozzle operation) was found by the method of finite differences. It is noted that the gas velocity on the axis of the nozzle in the critical cross section considerably exceeds the speed of sound; a retroflow zone arises at the wall of the nozzle which is also observed in experiments. It is concluded that a very appreciable pressure drop takes place in a twisted flow, especially on the input section of the nozzle. I. M. Baskin.

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USSR UDC 533.6.011

RYCHKOV, A. D., Tomsk

"Calculation of Twisted Flow of an Ideal Gas Lavale Nozzle"

Mekhanika Zhidkosti i Gaza, No 5, 1971, pp 72-76.

Abstract: A numerical solution of the problem of motion of a swirling flow of an ideal gas in a Lavale nozzle is produced by a setting method. As a result, a number of essentially multidimensional effects are revealed, in particular the effect of drawing of the sonic line into the nozzle, causing a decrease in its flow factor. The dependence of the change of this factor on swirling intensity is produced. A number of problems related to the adjustment of gas flow rate through a Lavale nozzle and changing nozzle thrust can be successfully solved if the gas flow leaving the nozzle is rotated.

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USSR

UDC 539.373

LEONOV, M. YA., MOLOTNIKOV, V. YA., and RYCHKOV, B. A., Institute of Physics and Mathematics, Academy of Sciences, Kirgizskaya SSR

"Development of the Concept of Slip in the Theory of Plasticity"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 2, 1973, pp 4-11

Abstract: The plastic deformation of a body, the volume of which does not change in the process of this deformation, is determined via the intensity of movements (local slips) of the linear distortions taking place along a set (fan) of planes and directions of slip. A study is made of "semisimple" loading, when the sign of the stresses changes only once. The deformation of plastic materials which have a yield platform is described for the first time on the basis of the slip concept. 3 figures. 12 references.

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USSR UDC 539.373

KUDRYASHOV, N. N., and RYCHKOV, B. A.

"Investigation of the Deformation of an Aluminum Alloy by Complex Loading"

Frunze, Deformatsiya Neuprugogo Tela, 1970, pp 68—80

Abstract : Results are reported of the experimental investigation of deformations of thin-walled tubular specimens of the aluminum alloy AK-6, preliminarily subjected to thermal treatment. Data of two groups of carried out experiments are presented separately. The first group includes uniaxial stretching, pure torsion, and the determination of the Baushinger effect by torsion of specimens of the investigated alloy. The second group includes a series of programs of complex loading by stretching combined with twisting. The experimental stress-strain dependences by complex loading are compared, on the one hand with flow and deformation theories, on the other hand with relations derived on the basis of the model of a linearly anisotropically strengthening medium and the Il'yushin isotropy postulate. Two trajectory types of complex loading,

USSR

KUDRYASHOV, N. N. and RYCHKOV, B. A., Deformatsiya Neuprugogo Tela, 1970, pp 68-80

the monotonous and the non-monotonous, are separating out within the limits of the mentioned model. By monotonous loading, the stress-strain characteristic is equivalent to correlations of the deformation theory. By comparison of these correlations with experimental data, the practical limits of the deformation theory applicability are determined. In contrast to the deformation and flow theories, a satisfactory description of experimental data was attained by non-monotonous loading. Six illustr., one table, seven biblio. refs.

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UDC 533.99

USSR

CHERNETSKIY, A.V., RYCHKOV, B.A., TEMEYEV, A.A.

"Investigation Of Low-Frequency Oscillations In Power Plasmatrons"

V sb. Vopr. fiz. nizkotemperaturn. plasmy (Problems Of The Physics Of Low Temperature Plasma--Collection Of Works), Minsk, "Nauk. i tekhn.," 1970, pp 566-570 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A339)

Translation: The mechanism is considered of the formation of magneto-sonic waves in plasma and the coupling of them with oscillations in the exterior circuit. The effect is investigated of oscillations at the parameters of the plasma source. Circuits are considered which make it possible to investigate the oscillations in the regions adjacent to the electrodes, for improvement of certain characteristics of the plasmatron. 2 ill.

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USSR

UDC 669.71.472(088.8)

ZHEVUROV, N. D., and RYCHKOV, D. A.

"Aluminum Electrolyzer Cathode Jacket Tilter"

USSR Author's Certificate No 266217, Filed 12/12/68, Published 24/07/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G152 P)

Translation: To increase the productivity and quality of installation and repair work, the clamps of a cathode jacket tilter are movably mounted onto pairs of hydraulic jacks, rigidly connected by traverses and consisting of rectangular bodies with an axis of rotation corresponding to the center of gravity of the cathode jacket, the upper and lower portions of which carry lever-type clamps with slots at the ends, equipped with springs and hydraulic cylinders.

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USSR UDC: 621.317.761

RYCHKOV, V. A.

"On Some Possibilities of Digital Frequency Meters"

V sb. Obmen opytom v radiopromyshlennosti (Experience Pooling in the Radio Industry--collection of works), Vyp. 6, Moscow, 1970, pp 72-75 (from RZh--Radiotekhnika, No 11, Nov 70, Abstract No 11A301)

Translation: The author discusses problems of improving the effectiveness of frequency measurements by means of a frequency meter with continuous zero count connected to a digital computer to whose memory unit measurement data are sent. In this regard, it is possible to improve the accuracy of both isolated measurements and the results of statistical processing of a series of measurements. E. L.

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USSR UDC 621.793:669.8

ANDREYEV, YU. YA., KOLOBOV, G. A., LYSOV, B. S., and RYCHKOVA, N. S., Moscow Institute of Steel and Alloys, Department of High-Temperature Materials

"Process of Producing Electrolytic Coatings by Titanium-Vanadium Alloys"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 6, 1970, pp 82-86

Abstract: An investigation of the process of obtaining Ti-Va alloy coatings was conducted on the basis of the results obtained by the authors in a study of the precipitation of dense titanium and vanadium deposits. A new procedure for obtaining electrolytic titanium-vanadium coatings is suggested. It consists in maintaining in an argon atmosphere at 900° for 10-12 hours a melt based on an equimolecular KCl-NaCl composition containing approximately 5 wt % Ti in the form of chlorides. Electrolysis using ferrous, molybdenum, and titanium-vanadium cathodes, was conducted at 800 and 900° in order to obtain Ti-Va coatings at various current densities. A comparison of results shows the effect of temperature on the rate of coating growth. The results also show that the high rate of coating growth with significant

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USSR

ANDREYEV, YU. YA., et al., Ysvetnaya Metallurgiya, No 6, 1970, pp 82-86

vanadium content (22 wt %) is obtained by using the Ti + 25% Va alloy as the anode at 800° C with a 0.2 a/cm$^2$ current density. The vanadium content decreases rapidly with current density, and the dependence of coating growth rate on current density represents an extremum characteristic. A 100-micron coating can be obtained on an Fe cathode at 800° and 0.2 a/cm$^2$ current density in 15 minutes.

USSR

BRIN, M. I. and RYCHKOVA, T. S.

"One Lag Model of the Realization of Capital Investments"

Ekonomika i Mat. Metody [Economics and Mathematical Methods], 1973, 9, No 3, pp 446-450 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V308)

Translation: Economic processes related to the realization of capital investments can be described by equations with delay of the form

$$y_t = p_0 x_t + p_1 x_{t-1} + \ldots + p_m x_{t-m},$$

where $y_t$ is the investment of fixed production funds during year t, while $x_t$ are the capital investments during the same year. This article studies the estimation of parameters of these equations using the method of least squares in cases when the coefficients $p_k$ can be represented in the form of first or second power polynomials of k. V. Kolchin

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Acc. Nr: AP0045594 Ref. Code: UR0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48, Nr 1, pp 115-118

# FEATURES PECULIAR TO THE CLINICAL COURSE OF INFECTIOUS HEPATITIS IN FAMILIAL FOCI

Rychnev, V. Ye.

Summary

In ten families the author observed infectious hepatitis in 25 persons. The prominent subjective symptom was generalized itching of the skin of diverse intensity and duration. Frequently there were pain in the right subcostal and epigastric region, poor appetite, intolerance of spicy and fatty food, weakness, rapid development of fatigue, urticarial eruption. As a rule, the liver was enlarged and painful, the spleen was not always palpated. In women there were disorders of the menstrual cycle, disturbances in the course of pregnancy. The disease ran a course without an acute stage, clear-cut cyclicity, for a prolonged time without any significant impairment of the general state and work capacity. Some liver tests were positive. The aldolase and transaminase activity commonly did not rise markedly. The author is of the opinion that in such cases there is a peculiar variant of infectious hepatitis.

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UDC 669.14.017.3:541.12.017

BUNIN, K. P., Corresponding Member of the Academy of Sciences Ukrainian SSR, MARTSYNIV, B. F., RYEPINA, N. I., and YATSENKO, O. I., Institute of Ferrous Metallurgy

"Peritectic Reaction in Fe-C-Al Alloys"

Kiev, Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A. Fizyko-Tekhnichni ta Matematychni Nauki, No 12, Dec 71, pp 1119-1121

Abstract: The article describes results of a study of structural and concentration changes during peritectic transformation in Fe-C-Al alloys (0.3-0.7 percent C, 1.6-3.5 percent Al). The alloys were smelted, then 10-gram batches remelted and superheated to 1580-1600° C and quenched during controlled cooling in the crystallization interval or below. The structure was analyzed microscopically, the aluminum distribution by the microroentgen spectral method. The formation of austenite was observed during the cooling. A $\gamma$-solid solution appears at the liquid-delta phase interface in the form of thin borders around the branches of primary $\delta$-dendrites. Crystallization

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USSR

BUNIN, K. P., et al., Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A. Fizyko-Tekhnichni ta Matematychni Nauki, No 12, Dec 71, pp 1119-1121

of the alloys by $L \rightarrow \delta$ and $L + \delta \rightarrow \gamma$ reactions is accompanied by interphase partition of aluminum, leading to the formation of intracrystalline microheterogeneity, which can be classified as inverse dendritic segregation.

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AP9052913 A.V. RYEPKA R

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 113-115

8 SD 1/14

M. F. Shostakovsky,
Yu. G. Kryajev, A. V. Rjepka, Z. A. Okladnikova

# THE PREPARATION OF POLYDIMETHYLVINYLETHINYLCHLOROMETHANE AND ITS CONVERSIONS

Polydimethylvinylethinylchloromethane has been obtained and aminated.

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USSR UDC 576.851.5:616.006-097

ZATULA, D. G., RYEZNIK, S. R., SLABOSPYTS'KA, A. T., and MARKOVA, N. B., Institute of Microbiology and Virology, Academy of Sciences UkrSSR

"The Effect of Different Doses of Bacillus subtilis 572 Toxin on Some Immunological Reactions and Tumor Growth in Animals"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 201-205

Anstract: Experimental data are reported from study of the toxic or stimulating effect of the metabolic products of saprophytic bacteria. Toxic metabolites were obtained by growing Bacillus subtilis strain 572 on synthetic Gauze medium No 2 for 10 days at 24°C, followed by filtration and lyophilization. Material was stored dry and diluted just before actual use. After the animals were injected, the following parameters were studied: hemagglutinin production in mice, properdin level in rabbits, and the resistance to tumor growth in mice. $LD_{50}$ was determined and the material was administered in the range of 0.05-1.5 $LD_{50}$. It was determined that the effect of dry toxic filtrate is dose-dependent: at dose ranges 1/10-1/5 $LD_{50}$ hemagglutination processes are activated, the properdin level in blood is increased, and the

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USSR

ZATULA, D. G., et al., Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 201-205

resistance of an organism to tumor growth is intensified. When the dose is increased to .5 $LD_{50}$ and higher, the protective forces of the organism are weakened and tumor growth is intensified.

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Receivers and Transmitters

USSR UDC: 621.376.2

RYFFA, V. N.

"Amplitude Clipping as a Means of Preemphasis"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 73-77 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D453)

Translation: The author discusses some of the problems of putting together combined radio transmissions (music and speech) with a broad dynamic range. Ways of achieving naturalness of transmission and making effective use of radio broadcast facilities are pointed out. In individual cases it is necessary to use trapezoidal modulation to raise the average level of the speech portion of a program. Two illustrations, bibliography of three titles. Resumé.

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AA0036245

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

235917 PROTOZOAL MICROORGANISMS are obtained by selection of an individual under microscope and subsequent cultivation. For rendering the procedure more expedient, a suspension of ptotozoal microorganisms is placed drop by drop on to a series of support plates separately adjusted in a wet chamber, the single plates are observed microscopically with a light beam perpendicular to the plate and the chosen plate bearing an individual is transferred into a liquid nutrient medium. 15.12.67. as 1204077/31-16, RYIGAS. E.M. (12.6.69) Bul. 6/24.1.69. Class 30 h. Int. Cl. C 12k.

19721074

USSR

UDC: 621.375.82

ZHIRYAKOV, B. M., RYKALIN, N. N., UGLOV, A. A., and FANNIBO, A. K.

"Some Principles of the Erosion of Material from the Action Zone of Laser Radiation"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 119-121 (from RZh--Fizika, No 7, 1973, Abstract No 7D1050)

Translation: Experimental data is presented concerning the erosion of material from the action zone of quasi-stationary laser pulses in the radiation density range close to the threshold. A qualitative interpretation is given of the formation of teardrop-shaped fractions in the decay products, which is based on representations of explosion-type destruction of material due to overheating in the melt. Bibliography of nine. Authors' abstract

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USSR

UDC 669.71:539.4

RYKALIN, N. N., SHORSHOROV, M. KH., KUDINOV, V. V., and GALKIN, YU. A., Moscow

"Some Means of Producing Reinforced-Fiber Composite"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 98-103

Abstract: The basic theoretical premises and the possibility of producing composites by the method of spraying a matrix onto fibers are discussed from the positions of the physical and chemical processes of joining materials from which the following problems must be solved to accomplish the process: 1) strong joining of fiber and matrix by chemical bonds between them; 2) minimum development of diffusion processes and the absence of new-phase formation between matrix and fibers; 3) maximum preservation of fiber strength; 4) uniform distribution of a given amount of fiber throughout the entire matrix volume; and 5) compaction and strengthening of the matrix with the fibers without damage to the fibers. In this work an aluminum matrix was plasma sprayed onto EP322 steel fibers and it was determined that the bonding strength of the Al-EP322 composite increased with decreased fiber diameter, which in turn reduces the critical length of the

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USSR

RYKALIN, N. N., et al., Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 98-103

fiber and makes it possible to obtain the same high level of strength at diminished temperature of fiber preheating in comparison with large-diameter fibers. It was also found that the strength of the plasma-sprayed composite is directly proportional to the volume fraction of fiber in the composite. Two figures, two tables, and ten bibliographic references.

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USSR

UDC 621.791.85

ZUYEV, I. V., RYKALIN, N. N., and UGLOV, A. A., Moscow

"Evaluation of the Fusion Depth by Electron-Beam Welding"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 72, pp 9-14

Abstract: The processes in the cavity in electron-beam welding are investigated on the basis of concepts of the role of explosive actions in forming a narrow cavity. According to experimental data, the diameter of the cavity can be determined in first approximation by the energy of a single thermal explosion, although its size increases somewhat during the process of the development of the cavity for which approximately 5-10% of the input energy is used up. The rest of the energy is used for smelting the cavity walls and heating the sample. The electron-beam total exposure time is summed up by the cavity vaporization time and the residual time of the electron-beam dispersal in the cavity by blown-out products. A relationship between the electron-beam parameters and the fusion depth was established which satisfactorily with experimental data. One table, 20 formulas, 15 bibliographic references.

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USSR

UDC 535.21

RYKALIN, N. N., UGLOV, A. A., and MAKAROV, N. I., Moscow

"Calculation of Heating of Films by Laser Radiation"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 3-8.

Abstract: A number of problems are studied on the heating of 2-layer materials by a local surface heat source, such as a laser beam. For thin films, the solution of the problem is found using integral transforms with respect to time and coordinates and a limit transfer as $\lambda_1$ and $a_1 \to \infty$ ($\lambda_1$ and $a_1$ are the heat conductivity and temperature conductivity coefficients of the upper layer), since when this condition is fulfilled the temperature through the thickness of the upper plate will be unchanged. In particular, the two-dimensional problem of heating of a 2-layered plate is studied on the assumption that the upper plate is thin, and a solution of the one-dimensional problem of heating of a film is found, considering heat emission from the surface.

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USSR

RYKALIN, N. N. (Academician), Institute of Metallurgy, Academy of Sciences USSR; REBINDER, P. A. (Academician), Institute of Physical Chemistry, Academy of Sciences USSR; and DOLGOPOLOV, N. N. (Candidate of Technical Sciences), VNIIZhELEZOBETON (All-Union Scientific Research Institute of Industrial Technology of Precast Reinforced Concrete Structural Parts and Products)

"Application of Low-Temperature Plasma in the Technology of Structural Materials"

Moscow, Stroitel'nyye materialy, No 1, Jan 72, pp 7-8

Abstract: Discussed are recent developments by Soviet scientists in low-temperature plasma processes for use in construction and structural processes. Various types of plasmochemical equipment based on plasma generators are cited of which jet-arc, high-frequency, and superhigh-frequency (or microwave) plasmatron models found extensive applications. The distinctive features and capabilities of these plasma generators are detailed. Research conducted by the Soviet institutes in the last ten years resulted in the formulation of basic thermodynamic and kinematic processes as well as in designs of new high-power plasma equipment in the ten- and hundred-Mc range. Plasma processes include spray coating techniques, plasma

USSR

RYKALIN, N. N., (Academician), Institute of Metallurgy, Academy of Sciences USSR; et al, Stroitel'nyye materialy, No 1, Jan 72, pp 7-8

metallization of reinforced concrete, ceramics with aluminum, copper and superhigh-refractory and corrosion-resistant metals such as titanium and stainless steels. Experimentation with other plasma processes involves welding and cutting of refractory metals, rock, granite, gabbro, quartz, and application to mining and recovery processes. Particular emphasis is placed on plasma methods for producing highly disperse metal and mineral powders, particle spheroidization, silica- and titanium dioxide-base active fillers and dyes and pigments for the polymeric materials industry. The priority problems relative to plasma applications include advancement of automatic control systems and optimization of flow charts and individual equipment for the plasma industry.

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USSR

UDC 535.21

RYKALIN, N. N., UGLOV, A. A., and MAKAROV, N. I., Moscow

"Calculation of Heating of Films by Laser Radiation"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 3-8.

Abstract: A number of problems are studied on the heating of 2-layer materials by a local surface heat source, such as a laser beam. For thin films, the solution of the problem is found using integral transforms with respect to time and coordinates and a limit transfer as $\lambda_1$ and $a_1 \to \infty$ ($\lambda_1$ and $a_1$ are the heat conductivity and temperature conductivity coefficients of the upper layer), since when this condition is fulfilled the temperature through the thickness of the upper plate will be unchanged. In particular, the two-dimensional problem of heating of a 2-layered plate is studied on the assumption that the upper plate is thin, and a solution of the one-dimensional problem of heating of a film is found, considering heat emission from the surface.

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USSR UDC 621.791.011

RYKALIN, N. N., and UGLOV, A. A. Moscow

"The Heating of Heterogeneous Materials in Butt Welding With a Surface Heat Source"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 23-28

Abstract: A previous article by the authors considered the problem of the temperature field of heterogeneous materials heated in the butt region by a surface heat source. The present article considers limiting cases of the heating of heterogeneous materials, the contact between which is ideal, corresponding to the initial heating stage and a stationary temperature field. The present article, unlike the earlier one, considers the length of the materials to be unlimited in the $y$ direction and, like the earlier article, considers the case where the source intensity is maximum at the contact and is described by the Gauss law. Formulas describing the temperature field of the materials are obtained by means of cosine transforms in space variables and Laplace

USSR

RYKALIN, N. N., and UGLOV, A. A., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 23-28

transforms. An analysis is given of the heating process under varying thermopnysical and optical material characteristics. Numerical temperature-field calculations are given for a copper-steel pair in ideal contact.

USSR

UDC 621.791.85

ZUYEV, I. V., RYKALIN, N. N., and UTLOV, A. A., Moscow

"Estimating the Critical Specific Power of Electron Beam Welding of Metals with Dagger Fusion"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 3-7

Abstract: The critical power density at which dagger fusion begins is estimated. It is shown that the volumetric power density is a more exact energy characteristic under the effect of an electron beam. The surface power density depends in this case on the magnitude of the accelerating voltage. Relations are obtained for estimating the critical parameters of the electron beam effect.

The critical volumetric power of electron beam welding with dagger fusion is calculated for certain metals. The results presented are compared with the Bas calculations of the power and specific power density for a number of metals. The estimates show that the critical specific volumetric power for a given material is a constant, is independent of the accelerating voltage, and is determined only by the thermophysical and mechanical properties of the material. Increasing the volumetric power density or the surface power density above the critical value leads to a decrease in the energy accumulation time. It is noted that in actual cases where welding is carried out with a power density of $10^6$-$10^7$ watts/cm$^2$, the energy accumulation time for all materials is $\sim 10^{-6}$-$10^{-5}$ seconds. According to the tabulated

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202720015-0"

USSR

ZUYEV, I. V., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 3-7

data, such materials as tungsten, copper, and gold require 10-20 times more power to obtain dagger fusion than stainless steel or titanium.

2/2

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--LOW PRESSURE ARC DISCHARGE STABILIZED BY A PLASMA JET -U-

AUTHOR-(03)-GAGANOV, YU.I., NIKOLAYEV, A.V., RYKALIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, FIZIKA I KHIMIYA OBRABOTKI MATERIALOV, NO 1, JAN-FEB 70, PP 23-26

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LOW PRESSURE EFFECT, ARC DISCHARGE, PLASMA JET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1665 STEP NO--UR/0472/70/000/001/0023/0026

CIRC ACCESSION NO--AP0136926

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF AN EXPERIMENTAL STUDY OF THE ENERGY CHARACTERISTICS OF A DC ARC AT 5-10 TORR, STABILIZED BY AN ARGON PLASMA JET, ARE STUDIED. THE ARC WAS EXCITED BETWEEN A COPPER CATHODE AND ANODE (50 AND 100 MM DIAMETER, RESPECTIVELY). IT WAS FOUND THAT THE REGION OF STABLE ARCING UNDER LOW PRESSURE WITH A DIFFUSIVE CATHODE SPOT DEPENDS ON THE AMPERAGE USED, THE CRITICAL RANGE OF WHICH IS 180-200 A. FACILITY: INSTITUTE OF METALLURGY, USSR ACADEMY OF SCIENCES.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--POSSIBLE EFFECT OF GAS CONTENT IN METALS ON THE ZONE ACTION OF A LASER BEAM -U-

AUTHOR-(03)-REKHOVSKIKH, V.F., RYKALIN, N.N., UGLOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 11, 1970, P. 1059-1062

DATE PUBLISHED--11FEB70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--NEODYMIUM LASER, METAL IMPURITY, COPPER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/2042 STEP NO--UR/0020/70/190/000/1059/1062

CIRC ACCESSION NO--AT0112997

UNCLASSIFIED

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AT0112997 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECT OF CERTAIN FACTORS, SUCH AS DEGREE OF MATERIAL PURITY, GAS CONTENT, AND POROSITY, ON THE NATURE AND SIZE OF THE MATERIAL ZONE AFFECTED BY LASER BEAM TREATMENT. IN THIS INVESTIGATION SPECIMENS OF VARIOUS BRANDS OF COPPER WERE SUBJECTED TO THE ACTION OF A NEODYMIUM GLASS LASER. IT IS FOUND THAT AT LASER PULSE ENERGIES OF ABOUT 2 J THE DEEPEST CRATERS ARE FORMED IN POROUS AND CRUDE COPPER, WHILE THE MOST SHALLOW ONES FORM IN CATHODIC AND ANODIC COPPER. THIS SAME SITUATION IS NOTED IN THE CASE OF PULSE ENERGIES IN EXCESS OF 4 J, BUT THE DIFFERENCE BETWEEN THE DEEPEST AND MOST SHALLOW CRATERS IS LESS GREAT. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT METALLURGII, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.791.75.001:537.523.5

GAGANOV, YU. I., NIKOLAYEV, A. V., RYKALIN, N. N., Moscow; Institute of Metallurgy, USSR Academy of Sciences

"Low-Pressure Arc Discharge Stabilized by a Plasma Jet"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 70, pp 23-26

Abstract: The results of an experimental study of the energy characteristics of a dc arc at 5-10 torr, stabilized by an argon plasma jet, are studied. The arc was excited between a copper cathode and anode (50 and 100 mm diameter, respectively). It was found that the region of stable arcing under low pressure with a diffusive cathode spot depends on the amperage used, the critical range of which is 180-200 a.

1/1

USSR

UDC 669.017:535.241.4

RYKALIN, N. N., UGLOV, A. A., and KOKORA, A. N., Moscow

"Effect of Laser Radiation on Iron Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 14-21

Abstract: A study was made on the failure of iron alloys (steels ShKh15, KhVG, Kh12M, and 45) when subjected to laser radiation with a specific force of approximately $10^5$ v/cm$^2$ on steels. Features of the crystallization zone in the alloys were studied and the principles of impurity distribution and dislocation structure in the irradiated zone were examined. Five figures, 21 bibliographic references.

1/1

## Photoelectric Effect

USSR UDC 621.385.831 (088.8)

VISHNEVSKIY, N.K., LAPSHIN, V.G., RYKALIN, V.I., SOLYANIK, V.I., KHROMOV, V.P.

"Method For Determining The Point Of Impact On A Photocathode Of Short Light Pulses"

USSR Author's Certificate No 266083, filed 2 Oct 68, published 2 July 70 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A261P)

Translation: A method is proposed, consisting of the determination of the time of flight of photoelectrons, and differing from the known in increased precision, attainable by the fact that the input chamber of the photomultiplier is placed in a crossed electrical and magnetic field (the vector of the magnetic field intensity lies in the plane of the photocathode). The resolving power is $\sim$5 bands per mm. N.S.

1/1

USSR

UDC 621.3.087

LAPSHIN, V. G., RYKALIN, V. I., SHUVALOV, R. S.

"Procedure for Recording Weak Light Fluxes"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 12 May 70, p 60, Patent No270910, Filed 15 Mar 68

Translation: This Author's Certificate introduces a procedure for recording weak light fluxes based on invariability and the shape of the single-electron pulse from a photomultiplier. In order to separate the signal from noise, the time interval between the beginning and the center of gravity of the output pulse of the photomultiplier is measured, the average time interval between the beginning and center of gravity of the noise pulse of the photomultiplier is sutracted from the measured value. The light pulse is considered recorded if the indicated difference exceeds some value predetermined by the experimental conditions.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--NATURE OF THE CHANDLERIAN MOTION OF THE POLE -U-

AUTHOR-(02)-RYKHLOVA, L.V., NESTEROV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 2, 1970, P. 426-430

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--COORDINATE, MOVING POLE METHOD, PLANET EARTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1761 STEP NO--UR/0033/70/047/002/0426/0430

CIRC ACCESSION NO--AP0125377

UNCLASSIFIED

2/2 006 UNCLASSIFIED

CIRC ACCESSION NO--AP0125377 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE RESULTS OF A STATISTICAL TEST OF MELCHIOR'S LAWS GOVERNING THE CHANDLERIAN MOTION OF THE EARTH'S POLE, ON THE BASIS OF POLAR COORDINATES CALCULATED FOR THE PERIOD FROM 1846.0 TO 1065.0. POSSIBLE RELATIONSHIPS BETWEEN THE CHANDLERIAN PERIOD, THE AMPLITUDE OF THE CHANDLERIAN PERIOD, AND THE AMPLITUDE OF THE ANNUAL MOTION ARE STUDIED BY STATISTICAL METHODS. CORRELATION COEFFICIENTS AND DISPERSION RELATIONS ARE OBTAINED. NO RELATIONSHIP BETWEEN THESE VALUES IS DETECTED. THE ANALYSIS LEADS TO THE CONCLUSION THAT THE CHANDLERIAN PERIOD DOES NOT CHANGE WITH TIME.

FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 614.72

RYKHTER, E. V., Perm' Polytechnic Institute, Perm'

"Measures Taken During 40 Years for the Control of the Pollution of the Atmosphere in Cities of the Western Ural Region and the Results Obtained by Applying These Measures"

Moscow, Gigiyena i Sanitariya, No 1, 1973, pp 61-62

Abstract: Measures taken since 1932 in the Western Ural region to reduce pollution of the air of cities are reviewed. To reduce the amount of smoke and ash emitted into the air by the Motovilikhinskiy Machine Building Plant at Perm', smokeless combustion and multistage cyclones were introduced. As a result the concentration of soot and ash in the air of the Motovilikhinskiy District of Perm' was reduced considerably. Use at the plant since 1952 of liquid fuel instead of the sulfur-rich Kizelovsk coal reduced greatly the release of $SO_2$ into the air. As a result of introduction of centralized municipal heating and of the closing of 252 small heating plants at residential buildings, small enterprises, and communal buildings, the quality of the air in other districts of Perm' was also improved. Measures to reduce pollution of the air at other cities of Perm'skaya Oblast' were also taken. Smokestacks with a height of 120-180 m were built at a number of power plants and industrial enterprises, so that smoke was released into higher layers of the atmosphere. At

USSR

RYKHTER, E. V., Gigiyena i Sanitariya, No 1, 1973, pp 61-62

the Zakamsk Thermoelectric Power Plant in Krasnokamsk, installation of heating plants designed at the All-Union Thermotechnical Institute reduced the ejection of ash into the atmosphere by 80%. Transfer of furnaces of the thermoelectric power plant of the Berezniki Soda Plant to the combustion of liquid fuel eliminated the ejection of 30 tons/day of ash and reduced the emission of $SO_2$ by 75 tons/day. At the Berezniki Potassium Combine, heating of drying drums with mazut and use of foam equipment for the purification of smoke gases from KCl dust reduced the release of dust by 75% and that of $SO_2$ by 84%. At the Berezniki Titanium-Magnesium Combine, as a result of absorption with lime of $Cl_2$ from the electrolysis department and of other measures that were taken, the emission of $Cl_2$ was reduced by 70%. At departments of the Berezniki Nitrogen Fertilizers Plant that produce dilute $HNO_3$, acid and alkali absorption towers and a chimney with a height of 100 m were installed. As a result of the measures taken, the emission of nitrogen oxides was reduced by 30%. At the department producing $H_2SO_4$, installation of a denitrator and of an electric filter reduced the emission of nitrogen oxides and of $H_2SO_4$ mist by 25% and 45%, respectively. At the Chusovaya Metallurgical Plant, conversion of the furnaces of the rolling mills and of the open-hearth furnace to combustion of mazut reduced the release of $SO_2$ by 46 tons/day. In connection with the introduction of centralized municipal heating at Perm', Berezniki, Krasnokamsk, and

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USSR

RYKHTER, E. V., Gigiyena i Sanitariya, No 1, 1973, pp 61-62

Gubakha, more than 600 small heating installations were eliminated during five years. Eight burning dumps of coal mines at Ugleural'sk and Kospash were extinguished.

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USSR

UDC 614.718-078-71

RYKHTER, E. V., Perm' Polytechnic Institute, Perm'

"Determination of the Bacterial Contamination of Atmospheric Air by Means of Type IR Universal Absorption Apparatus"

Moscow, Gigiyena i Sanitariya, No 1, 1973, pp 114-115

Abstract: A universal Rykhter absorption apparatus of type IR, which is used for the determination of gases, vapors, and dust in the air, was applied for the determination of bacterial microflora in the air at a point located at a distance of 20-30 m from the buildings of a hospital. The air was drawn through the apparatus that contained 5 ml of a sterile physiological salt solution. To 1 ml of the liquid through which the air had passed, 15 ml of a meat-peptone agar or blood agar nutrient medium were added in a dish, whereupon incubation was carried out for 24 hrs at 37° and then for 24 hrs at room temperature. After 48 hrs of incubation, the number of bacterial colonies in the agar was counted. Determinations of the bacterial contamination of the air were carried out every hour during the day (i.e., 8 times per day). The results obtained in the summer months corresponded to those obtained by using Krotov's apparatus. In the cold season determinations made by means of Krotov's apparatus were too low because of the unfavorable temperature factor.

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USSR

UDC 541.127 + 546.791.4

RYKOV, A. G., FROLOVA, L. M., and TIMOFEYEV, G. A.

"Investigation of the Oxidation-Reduction Reactions of Actinide Elements. XXIV. Kinetics of the Reaction Uranium(IV)-Iron(III) in Aqueous Isopropanol Solutions"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 875-876

Abstract: The reaction rate of uranium(IV)-iron(III) is higher in aqueous isopropanol solution than in aqueous methanol or ethanol. The logarithm of the effective rate constant is related to the intensity of a band with charge transfer in the absorption spectrum of the cation oxidizer $Fe^{3+}$. The reduction-oxidation rate depends on the donor ability of the solvent -- the rate is higher with decreasing effective ionization potential of the solvent.

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USSR

UDC 541.127 + 546.799

FROLOVA, L. M., TIMOFEYEV, G. A., and RYKOV, A. G.

"Kinetics of the Reaction of Uranium(IV)-Heptunium(VI) in Tributyl Phosphate Solutions"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 867-868

Abstract: Results are reported of the study of reaction kinetics of the oxidation of uranium(IV) with neptunium(VI) ions. All of the reactions examined in TBP solutions showed that a change in the effective reaction rate constant with changing composition of the solvent is due to the change in entropy of activation. Going from aqueous solutions to the solutions of TBP only the apparent characteristics of the reaction are changed, not the energetic properties. It would seem that the reaction mechanism in water solutions and in TBP is identical.

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USSR

UDC 542.61 + 546.791/4

VASIL'YEV, V. YA., ANDREYCHUK, N. N., and RYKOV, A. G.

"Extraction of Uranium (IV) From Tributyl Phosphate From Mixtures of Hydrochloric and Nitric Acids"

Leningrad, Radiokhimiya, Vol 14, No 1, 1972, pp 145-146

Abstract: It was shown that the perchlorate ions show a substantial influence on the extraction of neptunium (IV), neptunium (VI), zirconium (IV) and halfnium (IV) with tributyl phosphate (TBP) solutions. Similar results were obtained for the extraction of Uranium (IV) with a 10% solution of TBP in $CCl_4$ from mixtures of hydrochloric and nitric acids. From figure 1 it can be seen that during extraction from mixtures having the composition $[xM\ HNO_3 + (s-x)M\ HClO_4]$ the partition coefficient of U (IV) is significantly lower than during extraction from nitric acid. It should be noted that U(IV) is not extracted from $HClO_4$ solutions at $C_{HClO_4} < 6$ M. The change in the absorption spectrum (figure 2) of U (IV) in the organic phase shows that during the extraction from nitric acid, corresponding to the right side of the curve in figure 1 ($C_{HNO_3} > C^{max}_{HNO_3}$), these lines remain constant and therefore in the

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USSR

VASIL'YEV, V. YA., et al., Radiokhimiya, Vol 14, No 1, 1972, pp 145-146

organic phase only one form of U (IV) is present. However for extraction from mixtures corresponding to the left side of figure 1 the absorption spectra of U (IV) has several (at least two) forms. Thus both the partition coefficients and the U (IV) species are a function of the $HClO_4$ concentrate.

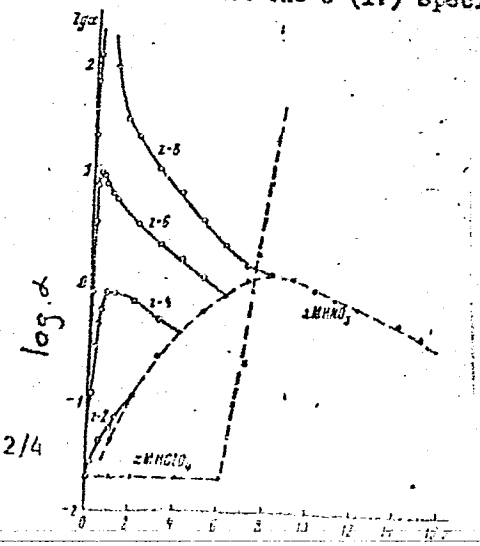


Figure 1

Partition coefficients $\alpha$, as a function of acid concentration, x, for $HNO_3$, $HClO_4$, and mixtures of the form $[xM\ HNO_3 + (z-x)\ M\ HClO_4]$ $C_U(IV) = 0.05M$, $t^o = 24 \pm 1^oC$.

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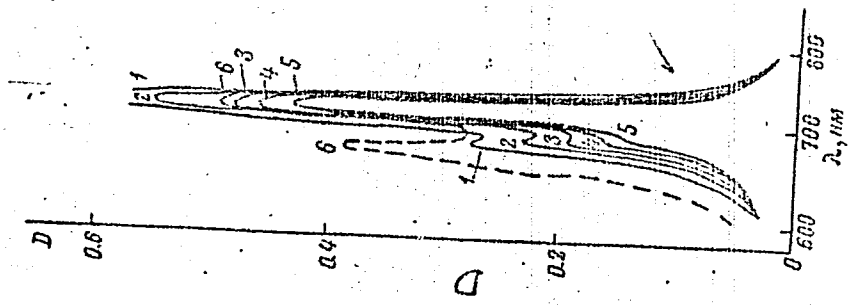
USSR

VASIL'YEV, V. YA., et al., Radiokhimiya, Vol 14, No 1, 1972, pp 145-146

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USSR

VASIL'YEV, V. YA., et al, Radiokhimiya, Vol 14, No 1, 1972, pp 145-146

$\lambda, 10^{-9}$m

Figure 2

Absorption spectrum of U (IV) in the organic phase during extraction from the mixture $[(8-x)M\ HClO_4 + xM\ HNO_3]$.

(For spectrum 1, x=0.1; 2, x=0.2; 3, x=0.3; 4, x=0.4; 5, x=1.5; 6, x=0.0).

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USSR

UDC 542.61 + 546.791.4

VASIL'YEV, V. Ya., ANDREYCHUK, N. N., and RYKOV, A. G.

"Extraction of Uranium (IV) From Tributyl Phosphate From Mixtures of Hydrochloric and Nitric Acids"

Leningrad, Radiokhimiya, Vol 14, Vyp 1, 1972, pp 145-146

Abstract: It was shown that the perchlorate ions show a substantial influence on the extraction of neptunium (IV), neptunium (VI), zirconium (IV) and halfnium (IV) with tributyl phosphate (TBP) solutions. Similar results were obtained from the extraction of Uranium (IV) with a 10% solution of TBP in $CCl_4$ from mixtures of hydrochloric and nitric acids. From figure 1 it can be seen that during extraction from mixtures having the composition [xM $HNO_3$ + (z-x)M $HClO_4$] the partition coefficient of U (IV) is significantly lower than during extraction from nitric acid. It should be noted that U (IV) is not extracted from $HClO_4$ solutions at $C_{HClO_4} < 6$ M. The change in the absorption spectrum (figure 2) of U (IV) in the organic phase shows that during the extraction from nitric acid, corresponding to the right side of the curve in figure 1 ($C_{HNO_3} > C^{MAX}_{HNO_3}$), these lines remain constant and

therefore in the organic phase only one form of U (IV) is present. However for extraction from mixtures corresponding to the left side of figure 1 the absorption spectra of U (IV) has several (at least two) forms. Thus both the partition coefficients and the U (IV) species are a function of the $HClO_4$ concentrate.

USSR

VASIL'YEV, V. Ya., et al., Radiokhimiya, Vol 14, Vyp 1, 1972, pp 145-146

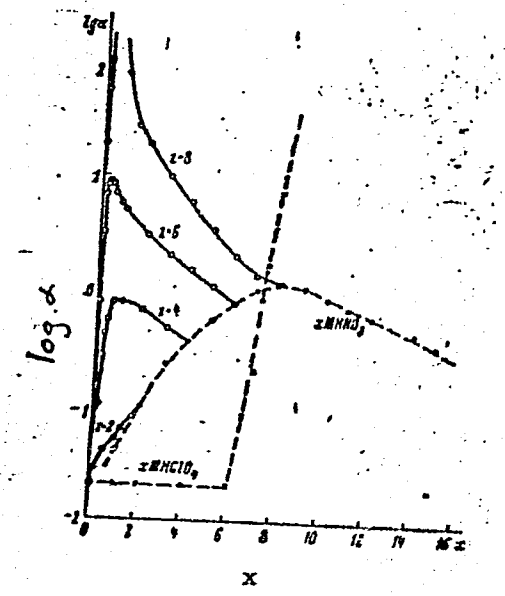


Figure 1 - Partition coefficients α, as a function of acid concentration, x, for $HNO_3$, $HClO_4$, and mixtures of the form [xM $HNO_3$ + (z-x)M $HClO_4$] $C_U$(IV) = 0.05M, $t^o$ = 24±1°C.

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USSR

VASIL'YEV, V. Ya., et al., Radiokhimiya, Vol 14, Vyp 1, 1972, pp 145-146

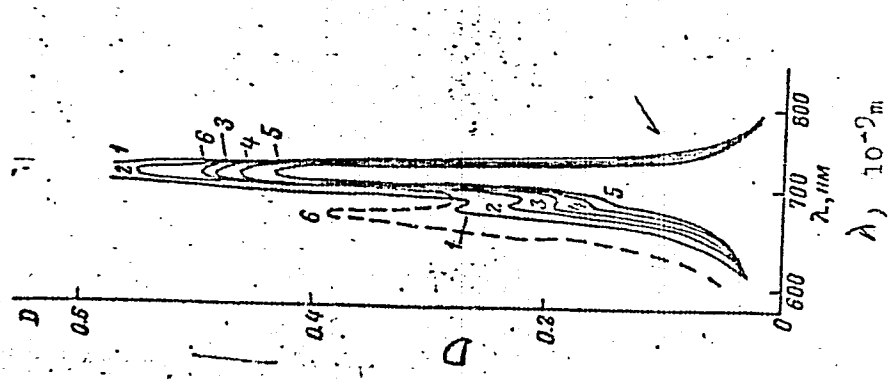


Figure 2 - Absorption spectrum of U (IV) in the organic phase during extraction from the mixture [(8-x)M $HClO_4$ + M $HNO_3$].
(For spectrum 1, x=0.1; 2, x=0.2; 3, x=0.3; 4, x=0.4; 5, x=1.5; 6, x=0.0)

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USSR

UDC 621. 314.61

PATSKEVICH, I.B., MARISHKIN, A.V., POSTNIKOV, V.F., RYKOV, O.A.

"Thyristor Converter For Investigation By The Method Of Pulse Fusion Of Melting And Evaporation Of Electrode Material"

Sb. nauchn. tr. Perm. politekhn. in-ta (Collection Of Scientific Works Of The Permskiy Polytechnical Institute), 1970, No 76, pp 75-79 (From RZh--Elektronika i yeye primeneniye, No 6, June, 1970, Abstract No 63555)

Translation: A unit is proposed for investigation of the instantaneous melting rate and for determination of the coefficients of melting and evaporation of electrode material during arc welding. The unit consists of a controlled rectifier, a control system, an electronic timing relay, and a device for immobilization of the specimens and for striking of the arc. The rectifier is built up of a 3-phase bridge circuit based on VKDU-2-150 thyristors. The control system consists of an electron switch based on a transistor and a 3-phase rectifier with six peak transformers. 3 ill. 2 ref. A.T.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INDUCING DYNAMIC NUCLEAR POLARIZATION IN CHEMICAL REACTIONS -U-

AUTHOR-(03)-RYKOV, S.V., BUCHACHENKO, A.L., KESSENIKH, A.V.

COUNTRY OF INFO--USSR

SOURCE--SPECTROSC. LETT. 1970, 3(2), 55-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--STRONG NUCLEAR INTERACTION, CHEMICAL DECOMPOSITION, BENZOYL PEROXIDE, AZO COMPOUND, CARBONATE, ELECTRON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1985 STEP NO--US/0000/70/003/002/0055/0058

CIRC ACCESSION NO--AP0125574

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DYNAMIC NUCLEAR POLARIZATION OF ME CONTG. PRODUCTS OF DECOMPN. OF BENZOYL PEROXIDE IN THE PRESENCE OF MEI (0.1M) WERE DETD. IN C SUB2 CL SUB4 AT 120DEGREES. SIGNS OF THE POLARIZATION OF THE PRODUCTS AGREE WITH THOSE OBTAINED FOR THE SAME PRODUCTS ON DECOMPN. OF ME CONTG. PEROXIDES. SIGN OF NUCLEAR POLARIZATION IS NOT DEPENDENT ON WHETHER RADICALS ARE FORMED AS INDIVIDUAL SPECIES OR ESCAPE FROM THE RADICAL PAIRS IN CAGES. ON DECOMPN. OF BICYCLOHEXYL PERCARBONEATES, PERACETYLISOPROPYL CARBONATE, AND SOME AZO COMPDS., CHCL SUB3 WAS FORMED IN WHICH THE PROTONS WERE NEG. POLARIZED. NECLEAR POLARIZATION IS INDUCED IN THE EARLY STAGES OF CHEM. REACTIONS WHEN STRONG ELECTRON ELECTRON AND ELECTRON NUCLEAR INTERACTIONS EXIST AND WHEN RECONSTRUCTION OF ELECTRONIC CLOUDS OF INTERFACING MOLS. TAKES PLACE. FACILITY: INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

1/3 012 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--DYNAMIC POLARIZATION OF NUCLEAR SPINS IN A CHEMICAL REACTION -U-

AUTHOR-(03)-BUCHACHENKO, A.L., KESSENIKH, A.V., RYKOV, S.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 3, PP 766-777

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--NUCLEAR SPIN, THERMAL DECOMPOSITION, ORGANIC PEROXIDE, NUCLEAR MAGNETIC MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1976/2065 STEP NO--UR/0056/70/058/003/0766/0777

CIRC ACCESSION NO--AP0043593

UNCLASSIFIED

2/3 012 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043593

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLARIZATION PROCESSES OF NUCLEAR SPINS IN CHEMICAL REACTIONS OCCURRING IN MAGNETIC FIELDS ARE STUDIED IN THE CASE OF THERMAL DECOMPOSITION OF ORGANIC PEROXIDES. THE DYNAMIC AMPLIFICATION COEFFICIENT OF NUCLEAR POLARIZATION IS ACCEPTED AS THE MAIN QUANTITATIVE CHARACTERISTIC OF THE PROCESS. APPLICATION OF THE METHODS OF OBTAINING AND TREATING THE EXPERIMENTAL DATA AND COMPARISON OF THE MEASURED QUANTITIES WITH THE RESULTS OF SIMPLE MODEL CALCULATIONS AS WELL AS THOSE OF SOME DIRECT EXPERIMENTS INDICATE THAT ORIENTATION OF NUCLEAR SPINS IN CHEMICAL REACTION ACTS IS NOT STATIONARY AND THAT TRANSITION INVOLVING CHANGES OF ORIENTATION ARE APPARENTLY THE CAUSE OF THE POLARIZATION EFFECT OBSERVED. A SIMPLE PHENOMENOLOGICAL THEORY OF THE KINETICS OF NUCLEAR MAGNETIC MOMENTS, IN WHICH DYNAMIC POLARIZATION OF THE NUCLEAR SPIN IN THE CHEMICAL REACTION IS TAKEN INTO ACCOUNT, IS PROPOSED AND CONFIRMED EXPERIMENTALLY. A NEW EXPERIMENTAL METHOD IS SUGGESTED AND REALIZED WHICH CONSISTS IN INVERSION OF THE MAGNETIC MOMENT DURING THE REACTION. SIMPLE WORKING FORMULAS ARE DERIVED WHICH CAN BE EMPLOYED FOR TREATING THE EXPERIMENTAL DATA. POLARIZATION OF NUCLEAR SPINS IN THE DECOMPOSITION PRODUCTS OF ORGANIC PEROXIDES IS INVESTIGATED AND THE DYNAMIC AMPLIFICATION COEFFICIENTS FOR NUCLEAR POLARIZATION, E, ARE MEASURED FOR THE FIRST TIME FOR THERMAL DECOMPOSITION REACTIONS. THE PREDICTIONS OF THE ORIGINAL HYPOTHEISIS REGARDING CHEMICAL POLARIZATION OF NUCLEI VIA THE NONSTATIONARY OVERHAUSER EFFECT ARE ANALYZED IN DETAIL.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

3/3 012

CIRC ACCESSION NO--AP0043593

ABSTRACT/EXTRACT--POSSIBLE CONSEQUENCES OF THE ASSUMPTION OF CONSERVATION OF NUCLEAR SPIN ORIENTATION IN CHEMICAL REACTION ACTS ARE CONSIDERED. THEORETICAL LIMITING VALUES OF E UNDER THIS ASSUMPTION ARE OBTAINED. THE DEPENDENCE OF THESE QUANTITIES ON THE CONDITIONS OF THE REACTION IS DISCUSSED. A COMPARISON OF THE MEASURED VALUES OF THE DYNAMIC AMPLIFICATION COEFFICIENT WITH THE THEORETICAL LIMITING VALUES, A STUDY OF THE DEPENDENCE OF THESE QUANTITIES ON VISCOSITY, TEMPERATURE AND CONCENTRATION, AND FINALLY DIRECT EXPERIMENTS ON POLARIZATION IN CHCL SUB3 SHOW THAT THE ASSUMPTION OF CONSERVATION OF NUCLEAR SPIN ORIENTATION IN CHEMICAL REACTIONS IS NOT VALID.

UNCLASSIFIED

AA0044248

Rylov, V.A

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

243952 GASES OR LIQUIDS ANALYSIS where the gas analyser comprises an infra-red radiation source (1); a shutter system (2); photoelectric pickup (3) for the reference signal; working cell (4); optical-acoustical radiation receiver consisting of receiving chambers (5,6) and a microphone (7) arranged in tandem. A phase measuring device consists of an amplifier (8), phase shifter (9), limiter (10), phase detector (11) and a secondary instrument, millivoltmeter (12).

The instrument zero is set by the phase shifter (9). It can also be done by a screen placed between the radiation receiver chambers, or by varying the reference signal phase. The chambers (5,6) have different volumes, which shifts the phases of the pressure oscillations in these chambers, so that the phase of the signal at the radiation receiver output is a function of the component to be determined concentration in the working cell.

5.5.64 as 898645/26-25. LOSITSKII.I.T.et al.AUTOMATION EXPERIMENTAL & DES.OFFICE. (3.10.69) Bul 17/14.5.69. 421. Int.Cl.G 01n.

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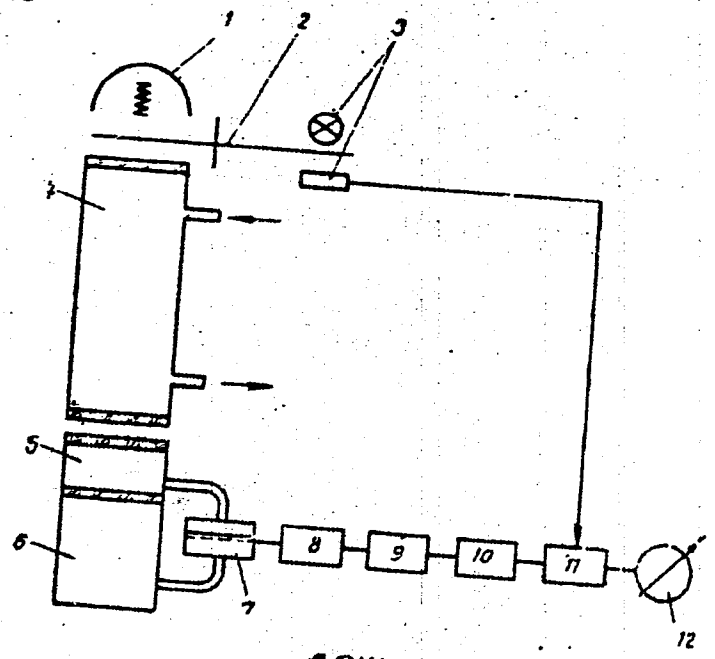


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19770756

AA0044248

AUTHORS: Lositskiy, I. T., Melamed, A. G., Rylov, V. A.

Opytno-Konstruktorskoye Byuro Avtomatiki

3/3

19770757

USSR

ZHIVOV, V. A., RYKOV, V. I., YAKOVLEVA, G. S. UDC: 534

"Concerning Application of the Law of Corresponding States to Investigation of the Acoustic Characteristics of a Liquid"

V sb. Primeneniye ul'traakust. k issled. veshchestva (Application of Ultra-acoustics to the Study of Matter--collection of works), vyp. 25, Moscow, 1971, pp 222-225 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Zh526)

Translation: The method of dimensional analysis is used to find expressions for the parameters of intermolecular interaction, and speeds of sound are calculated for a large number of normal liquids. When the structural coefficient is taken into account, the divergence between theoretical and experimental velocities amounts to 2%. Bibliography of 12 titles. V. Ye. Gordeyev.

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USSR

UDC 519.21

RYKOV, V. V., YASTREBENETSKIY, M. A.

"Regenerating Processes with Several Types of Regeneration Points"

Bol'shiye Sistemy. Massovoye Obsluzh. Nadezhnost' [Large Systems. Queueing. Reliability -- Collection of Works], Moscow, Nauka Press, 1970, pp 203-208 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V82 by B. Sevast'yanov).

Translation: A class of regenerating processes with several types of regeneration points is defined. This class of processes naturally generalizes recurrent events introduced by Feller, and regenerating Smith processes. It is demonstrated that particular cases of these processes include semi-Markov processes and alternating regenerating processes. A theorem is proven concerning the limiting expression for probability that the process in question will be in some fixed set as $t \to \infty$.

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TITLE--FREQUENCY MULTIPLICATION MODE OF OSCILLATION IN GALLIUM ARSENIDE SAMPLES -U-

AUTHOR-(03)-SHELUDKO, N.A., RYKOV, V.V., SESTROVETSKIY, B.V.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A MICROWAVE OSCILLATOR ARRANGEMENT IN WHICH IT IS POSSIBLE TO ATTAIN A TRANSITION TO STABLE EMISSION AT THE SECOND, THIRD, AND FOURTH HARMONICS WITH POWER LEVELS COMPARABLE TO THAT AT THE FUNDAMENTAL FREQUENCY (0.5 TO 1 GHZ). EXPERIMENTS WERE CONDUCTED WITH GALLIUM ARSENIDE SAMPLES FROM 100 TO 200 MICRONS IN LENGTH AND WITH AN ELECTRON CONCENTRATION OF ABOUT 10 TO THE 15TH POWER PER CU CM. A MOVING PISTON ARRANGEMENT IS USED FOR TUNING, AND SPECTROGRAMS OF FUNDAMENTAL AND HARMONIC EMISSIONS ARE SHOWN FOR ILLUSTRATION.

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ALESHINA, L. A., VRUBLEVSKAYA, E. L., MOKROV, A. P., RYKOVA, L. L., SHIVRIN, O. N., RABINOVICH, Ye. M., Tula

"Temperature Dependence of the Process of Formation of a Solid Solution Upon Sintering of Tungsten-Molybdenum Powder Pressings"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 111-117.

Abstract: This article is primarily dedicated to the study of the temperature dependence of sintering and its influence on the formation of a tungsten-molybdenum solid solution. The minimum holding time is established for various temperature modes of sintering. Free molybdenum disappears almost completely after minimum holding (15 minutes) at 1300-2200° C, but a significant quantity of almost pure tungsten is still present. As sintering time and temperature are increased, this W gradually goes over into the solid solution. The effective activation energy of the process is 64,000 cal/mol for the 1300-1600° interval and 76,000 cal/mol for the 1600-1800° interval. The solid solution did not achieve high homogeneity at any of the temperature-time modes used. This was particlarly true of the alloy containing 50 wt.% Mo +

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50 wt. % W. Increasing the temperature for this alloy leads to the formation of concentration heterogeneities. The kinetics of sintering in the surface layer differ from sintering in the volume of a specimen. The surface layers are richer in W.

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